ORIGINAL PAPER

Evaluation of a National Effort to Reach Hurricane Katrina Survivors and Evacuees: The Crisis Counseling Assistance and Training Program

Fran H. Norris · Nikki D. Bellamy

Abstract Hurricane Katrina created the largest population of internally displaced persons in the history of the United States. Exceptions to Federal Emergency Management Agency's (FEMA's) usual eligibility requirements allowed states from across the nation to apply for Crisis Counseling Assistance and Training Program (CCP) grants to provide services to evacuees. Over a 16-month period, crisis counselors documented 1.2 million individual and group encounters across 19 CCPs. Most encounters (936,000, 80%) occurred in Presidential disaster-declared areas of Louisiana, Mississippi, and Alabama, but many (237,000, 20%) occurred in 16 smaller "undeclared" programs across the country. Programs showed excellent reach relative to external benchmarks provided by FEMA registrations for individual assistance and population characteristics. Programs varied widely in service mix and intensity. The declared programs reached more people, but the undeclared programs provided more intensive services to fewer people with higher needs.

Keywords Disaster mental health services · Hurricane Katrina

F. H. Norris (✉)
National Center for Posttraumatic Stress Disorder (NCPTSD), VAMC (116D), 215 North Main Street, White River Junction, VT 05009, USA
e-mail: fran.norris@dartmouth.edu

F. H. Norris
Dartmouth Medical School, Hanover, NH, USA

N. D. Bellamy
Center for Mental Health Services, Substance Abuse and Mental Health Services Administration, Rockville, MD, USA

Introduction

Since the Crisis Counseling Assistance and Training Program (CCP) was authorized in 1974 by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93–288, amended by Public Law 100–707), the Federal Emergency Management Agency (FEMA) has funded dozens of CCPs across the United States and its territories. The CCP provides supplemental funding to states, US territories, and federally recognized tribes after a Presidential disaster declaration. Through an interagency agreement with FEMA, the Substance Abuse and Mental Health Services Administration (SAMHSA) Center for Mental Health Services (CMHS) provides grant administration and program oversight for the CCP, as well as training and technical assistance for mental and behavioral health personnel. CCPs incorporate a strengths-based approach to help disaster survivors access and identify personal and community resources that will aid in the recovery process. These programs assume that most disaster survivors can be naturally resilient when empowered by support, education, and linkages to community resources. CCPs aim to reach disaster affected communities by bringing services to where people are in their day-to-day lives—in their homes, neighborhoods, schools, churches, and places of work—a model of service delivery commonly referred to as outreach (Elrod et al. 2006; Felton et al. 2006; Flynn 1994; Naturale 2006; Young et al. 2006).

With the possible exception of the September 11th terrorist attacks, no disaster on US soil has raised more immediate or immense concerns regarding its potential mental health impacts than Hurricane Katrina (see Norris and Rosen 2009). On August 29, 2005, Hurricane Katrina caused catastrophic damage on the Mississippi Gulf Coast, and the subsequent levee failures in New Orleans caused

extensive loss of life and massive displacement. In light of the severity of this disaster, it was not surprising that the disaster-declared states of Louisiana, Mississippi, and Alabama moved swiftly to apply for CCP grants. What was surprising was the unprecedented decision of the federal government to open up CCP eligibility to all states hosting "Katrina evacuees," as persons displaced by the hurricane came to be known. Over 30 states applied for the CCP and received Immediate Service Program grants, which are funded up to 60 days after the date of the disaster declaration, and 18 states subsequently applied for and received Regular Service Program (RSP) grants, which typically operate for nine additional months (although extensions are common). The degree to which this single program innovation was effective in reaching Katrina survivors and evacuees is important to examine because a number of hypothetical disaster scenarios could cause substantial displacement.

Such an examination is possible because of a second, concurrent program innovation. Shortly after Hurricane Katrina, CMHS introduced a standardized data collection system for cross-site evaluation. Prior to this policy change, the quality of any evaluation was vastly determined by the grantee; some programs, like *Project Liberty* (New York's CCP after 9/11), conducted extensive evaluation, whereas others did little more than tally services, according to varying definitions. The Katrina cross-site evaluation was designed to document reach and quality. While both are important, reach and quality capture relatively independent dimensions of program performance, and the present analysis is concerned with the former. Reach is essentially the extent to which a program delivers the services it intended to deliver. The public health mission of the CCP requires it to serve large numbers of people who are diverse in age, ethnicity, and needs, and its disaster response mission requires it to do so with minimal delay.

More specifically, we aimed to answer three sets of questions pertaining to program reach. First, there are the questions of *how many*, *where*, and *when*? These questions reference the most basic spatial and temporal parameters of service volume. Did the eligibility innovation substantially expand program reach? Were the services distributed across states appropriately, as reflected in the states' relative numbers of people in need? Did service volume show a sharp rise over time, as it must, given the brief life span of disaster programs? Despite notable differences in the nature of the events and settings (e.g., human versus natural causes), Project Liberty's performance provides a reasonable standard for evaluating the Katrina response because of that program's large budget and ambitious goals concerning reach. Over a 3-year period from September 2001 through December 2004, the program reached an estimated 1.5 million persons in New York through individual crisis counseling or public education. Service volume steadily increased for the first 7 months, peaking at 41,000 encounters monthly, a level of service that was sustained over the next 14 months until August 2003 when the program began to phase down (Donahue et al. 2006c).

Second, there is the question of *what*? CCP guidance emphasizes that programs should offer both individual and group services, but grantees are given latitude to determine the best mix for their settings. What was the mix of individual and group services? Did this service mix vary across programs and, if so, did it have discernable or consistent consequences for the reach of the programs? Did programs vary in service intensity, as reflected in the typical length of encounters and the prominence of first versus follow-up visits in their portfolios? Over half (57%) of the individual encounters in Project Liberty lasted less than 30 min (Donahue et al. 2006a), and the program primarily reached new individuals not previously served by the program even after it had been operating for many months (Felton et al. 2006). In the first year, 80% of encounters were first visits, but even during the project's second year nearly two-thirds of encounters were first visits. However, longer visits and follow-up (i.e., "more intensive" services) might be more prominent in the Katrina response because of the high needs of the population.

Third and finally, there is the question of *whom*? How adequate was program reach to key constituencies, such as older adults, children, and African Americans, and to people most at risk for distress because of the severity of their exposure to the hurricane? These questions are important because CCPs are charged to take a proactive posture in reaching out to vulnerable groups (Flynn 1994). Children, minority group members, and highly exposed survivors are generally at higher risk for postdisaster distress than their counterparts (Norris et al. 2002). Although disparities in access to mental health services are common among minority groups, crisis counseling programs may exceed these norms for performance because of their emphasis on providing affordable (free) and accessible services (Norris and Alegria 2005). In fact, Project Liberty served greater numbers of African Americans than their population proportions would suggest (Donahue et al. 2006a). Reaching children has posed challenges in past disaster responses because it requires mental health systems to form trusting collaborative relationships with families and schools (Elrod et al. 2006; Norris et al. 2006).

In summary, we aimed in this study to examine reach—the "who, what, when, where, and how many" of service delivery to Hurricane Katrina survivors. These are not questions for which absolute criteria exist for drawing conclusions about the "success" of program reach. However, two external "benchmarks" facilitated these judgments. One benchmark was the number of FEMA

registrations in each state. Victims of presidentially declared disasters can register to receive assistance for temporary housing, home repair, medical costs, funeral costs, clothing and household items, disaster unemployment benefits, and legal services. Not all disaster victims register with FEMA, but those in need of help generally do, and thus, across programs, the number of FEMA registrations serves as a rough measure of relative need. There are two potential applications of this information. First, a strong correlation between the number of FEMA registrations and the number of counseling encounters would suggest that services were adequately distributed in accord with need. Second, the ratio of encounters to registrations provides a standardized indicator of reach (penetration). Values approaching 1 (counseling encounters equal to registrations) would point to very high penetration. These are not perfect indicators; the data are not linked, and a ratio of 1 cannot be interpreted literally to mean that each registrant received counseling. Nonetheless, by using this ratio as a benchmark, it was possible to examine whether program characteristics, such as service mix, influenced program reach.

The second benchmark was census data on the race and age distributions in the population of the disaster-declared area, which create a standard for assessing the adequacy of reach to key constituencies. These data allowed us to test whether certain demographic groups, such as African Americans, children, and older adults were proportionally represented in the crisis counseling population. In general, the closer the match between the area and counseling populations, the better, but this interpretation has to be tempered when certain populations are prioritized for outreach.

Method

Sample

Nineteen crisis counseling programs in 17 states participated in the post-Katrina cross-site evaluation. Three programs were in disaster-declared areas. The remaining 16 "undeclared programs" worked to serve persons displaced by Hurricane Katrina. Two undeclared programs were in states that had disaster declarations, but their purpose was different, and their data were kept separate (For example, the Louisiana declaration included parishes in the southeastern sector of the state; their undeclared program served all other parishes in the state). These CCPs represent all states receiving RSP Grants after Hurricane Katrina except Iowa, from which we received too little data to include in the cross-site evaluation. We did not include data from Immediate Service Program Grants unless the state also received an RSP Grant.

A data toolkit, databases, and evaluation manual were circulated to programs at the beginning of Month 3 or about 60 days post-Katrina. Thus we used Month 3 as the first month of the evaluation interval. Because only Louisiana and Mississippi were still in operation after Month 18, we used that month as the last for the cross-site evaluation. Therefore, all encounter logs with service dates in Months 3–18 were sampled.

Data Sources and Measures

In this paper, we focus on data from the individual crisis counseling encounter logs and group encounter logs that were most pertinent to evaluating reach. All data collection tools were approved by the Office of Management and Budget in September 2005.

Individual Crisis Counseling Encounter Logs

Counselors recorded basic descriptive information about each individual encounter on a one-page form. Crisis counseling was defined as an encounter that lasted at least 15 min and involved participant engagement or disclosure (very brief encounters were tallied on a separate, weekly form). Counselors were instructed to complete one individual log for each person actively engaged in the encounter in cases where they visited with two or more family members (e.g., mother and child) at the same time. Counselors chose one of four categories to describe the duration of the encounter: *15–29 min*, *30–44 min*, *45–60 min*, or *longer than 60 min*. They also recorded whether the visit was the individual's *first*, *second*, *third*, *fourth*, or *fifth or more*. Counselors noted the location of service by checking standard categories or by writing the location in a box for "other." These data were subsequently coded into categories of home, which included temporary as well as permanent residences and homes of family members and friends, schools, offices of government and social services, workplaces, places of worship, disaster relief centers, medical centers, public places (parks, streets, events, retail centers), phone, and unknown if a category was not indicated.

Counselors recorded the zip code of service, and we used a zip code database to assign encounters to county. A zip code can cross county lines but has a primary county based on the distribution of addresses. In these zip codes, the average proportion of addresses in the primary county was 0.96, suggesting that the county designation was likely to be accurate for the vast majority of logs. We used an ordinal measure of urbanicity downloaded from www.arfsys.com.

Demographic characteristics of gender, race (one or more of the census-defined categories of *American Indian/ Alaskan Native*, *Asian*, *Black/African American*, *Pacific*

Islander/Hawaiian native, *White*), ethnicity (*Latino/Hispanic* or *not*), and age (categories were *0–5*, *6–11*, *12–17*, *18–39*, *40–64*, *65+*) were based on the counselor's observations, i.e., counselors did not ask people their gender, age, race, or ethnicity. This form was not intended to be survivor self-report; rather encounter information was based on counselor observation and interaction. Counselors also checked risk factors that were identified during the course of their conversation. Potentially traumatic stressors included rescue/recovery work, injury, threat to life, family member missing or dead, friend missing or dead, or witnessed death/injury. Losses and disruptions included separation from loved ones, home damage, displacement, disaster unemployment, financial loss, evacuation, and community destruction.

Group Encounter Logs

Group crisis counseling (in which participants do most of the talking) and public education activities (in which counselors do most of the talking) were defined as interactions at least 15 min in length with two or more unrelated individuals. These activities were captured on the same form, which included a place to choose which of the two service types the log described. The number of participants was also recorded. Group encounters refer to person-level counts, not the number of groups. Visit number had three categories: *first session of a group expected to meet once*, *first session of a group expected to meet more than once*, and *second or greater session of an ongoing group*. Duration had four categories: *<30 min*, *30–44 min*, *45–59 min*, and *60 min or more*. Age (e.g., child, older adult) was the only group identity included in this analysis. Service location was coded using the same procedures as described for the individual logs.

Other Data Sources

Information on FEMA registrations (applications for individual assistance) was downloaded from www.fema.gov. Registrations were summed by state of the applicant's mailing address for Disasters 1603, 1604, and 1605 (the designations for Katrina in Louisiana, Mississippi, and Alabama, respectively). Grant size was obtained from program administrators at SAMHSA (we present only a few supplementary analyses with these data). US census data were used to characterize the race/ethnic and age distribution of the population served by the CCP. Each encounter log was geo-coded, and the census data corresponding to the encounter's county were added to the record. The population estimates are the average of these values, which essentially weights them toward counties where the programs were more active. For example, the declared area of Mississippi included many counties with moderate damages, but services were concentrated in the southernmost counties that were heavily damaged by Hurricane Katrina.

Results

Total Reach: How Many Encounters, Where and When?

Service Volume by State and Program

Between November 1, 2005 and February 28, 2007, crisis counselors documented 1.2 million encounters with persons affected directly or indirectly by Hurricane Katrina. Table 1 provides a detailed account of service delivery by program type (declared or undeclared), state, and service type. The focus is on total reach, shown in the column for all services at the right. Most of the encounters (936,000 or 80%) occurred in disaster-declared areas of Louisiana, Mississippi, and Alabama. However, the most innovative feature of the Katrina response was its national scope. About 237,000 encounters occurred outside the disaster declarations, in states that spanned the country from the Northeast to the Midwest to the Rockies. These 16 undeclared programs varied greatly in their service volume, with four programs (Florida, Texas, Louisiana undeclared, and Georgia) together accounting for 80% of encounters of undeclared programs.[1]

Table 2 shows the frequencies of encounters (all services combined) by state, with states listed in rank order of FEMA registrations for individual assistance. The number of registrations varied greatly from 532,000 in Louisiana to 382 in Utah. CCP encounters were proportional to these applications. The Pearson correlation between service volume and FEMA registrations was 0.93, $P < 0.001$, and the Spearman rank-order correlation (r_s, more appropriate for non-normally distributed data) was 0.88, $P < 0.001$. Some programs over-performed (for example, Utah had over six CCP encounters for every FEMA application) and some programs under-performed (For example, Indiana had only one encounter for every five FEMA applications) but, in general, the distribution of encounters across states was highly consistent with the distribution of registrations

---

[1] Another potential benchmark is how programs performed relative to their budgets. The three declared programs, which provided 80% of the services over this interval, accounted for 68% of the total budget. The four undeclared programs that provided 80% of the encounters outside of the areas of disaster declarations accounted for 77% of the undeclared program budget.

Table 1 Summary table: Hurricane Katrina encounters by service type and program (months 3–18)

Program	Individual counseling		Group counseling		Public education		All services	
	n	% Of total	n	% Of total	n	% Of total	n	% Of total
Declared programs								
AL	9,083	1.3	5,014	3.4	9,676	3.0	23,773	2.0
LA	244,354	34.8	76,730	52.5	110,312	34.0	431,396	36.8
MS	366,733	52.2	29,633	20.3	84,804	26.2	481,170	41.0
Total	620,170	88.2	111,377	76.2	204,792	63.2	936,339	79.8
Undeclared programs								
AL	5,303	0.8	1,467	1.0	6,903	2.1	13,673	1.2
AR	3,391	0.5	1,366	0.9	1,697	0.5	6,454	0.6
CO	2,189	0.3	462	0.3	433	0.1	3,084	0.3
FL	8,819	1.3	4,849	3.3	56,986	17.6	70,654	6.0
GA	8,842	1.3	2,130	1.5	11,349	3.5	22,321	1.9
IL	3,819	0.5	63	0.0	12	0.0	3,894	0.3
IN	117	0.0	26	0.0	98	0.0	241	0.0
LA	28,390	4.0	3,247	2.2	7,320	2.3	38,957	3.3
MD	1,547	0.2	106	0.1	6,201	1.9	7,854	0.7
MO	885	0.1	408	0.3	1,926	0.6	3,219	0.3
NE	729	0.1	641	0.4	536	0.2	1,906	0.2
NJ	527	0.1	310	0.2	331	0.1	1,168	0.1
PA	997	0.1	75	0.1	716	0.2	1,788	0.2
TX	15,396	2.2	18,844	12.9	23,684	7.3	57,924	4.9
UT	1,435	0.2	190	0.1	801	0.2	2,426	0.2
WI	412	0.1	691	0.5	336	0.1	1,439	0.1
Total	82,798	11.8	34,875	23.8	119,329	36.8	237,002	20.2
All programs	702,968	100.0	146,252	100.0	324,121	100.0	1,173,341	100.0

(or need). Altogether, there were 1.2 CCP encounters for each FEMA application.[2]

The question of where services were delivered can also be asked at the local level because one of the requirements of an outreach model is that services are to be provided out in the community, at homes, schools, churches, places of work, and other community settings. Details regarding service location are provided in Table 3. Of most relevance was the finding that only 1–7% of encounters took place at the provider organizations.

Service Volume Over Time

Figure 1 show the trends in service volume across the 16-month evaluation period. Nationwide, the CCPs showed rapid development of capacity, as manifest in the significant quadratic (inverted U or V shaped) trend, $R^2\Delta = 0.870$, $F (2, 13) = 45.70$, appropriate for programs that did not exist before the disaster. The total number of encounters per month increased sharply between Month 3 (18,500 encounters) and Month 10, where service volume peaked at 115,000 encounters in that one month. Between Months 11 and 13, service volume was at or near 100,000 encounters monthly. After Month 13, service volume declined sharply before leveling off during Month 16 at 46,000–49,000 encounters monthly.

Service Mix and Intensity: What Services were Delivered?

Mix of Individual and Group Services

Crisis counselors documented 703,000 individual counseling encounters, of which 620,000 (88%) occurred in disaster-declared areas (Table 1). Over the same period, counselors documented 146,000 group crisis counseling encounters, of which 76% were in declared areas, and 324,000 public education encounters, of which 63% occurred in declared areas.

Across all programs, individual crisis counseling accounted for 56% of encounters, group crisis counseling

---

[2] Not surprisingly, grant size (dollars awarded) was highly correlated with FEMA registrations, $r_s = 0.85$, $P < 0.001$, and with the number of counseling encounters, $r_s = 0.75$, $P < 0.001$.

Table 2 Crisis counseling program encounters (months 3–18) by state relative to FEMA registrations for individual disaster assistance

State	FEMA registrations		CCP encounters		
	n	Rank	n	Rank	Ratio
LA	531,797	1	470,353	2	0.88
MS	261,947	2	481,170	1	1.84
TX	89,590	3	57,924	4	0.65
AL	68,549	4	37,446	5	0.55
GA	21,768	5	22,321	6	1.03
FL	16,478	6	70,654	3	4.29
AR	5,983	7	6,454	8	1.08
IL	4,111	8	3,894	9	0.95
MO	3,200	9	3,219	10	1.01
CO	2,358	10	3,084	11	1.31
MD	2,099	11	7,854	7	3.74
PA	1,732	12	1,788	14	1.03
IN	1,684	13	241	17	0.14
NJ	1,265	14	1,168	16	0.92
WI	1,041	15	1,439	15	1.38
NE	455	16	1,906	13	4.19
UT	382	17	2,426	12	6.35
All	1,014,439	–	1,173,341	–	1.16

It was not possible to distinguish FEMA assistance applications for LA declared and undeclared parishes because all applications were filed under the same disaster declaration (1603). Therefore encounters for declared and undeclared programs within the states of Louisiana and Alabama were combined in this table

FEMA, Federal Emergency Management Agency; Rank, order of states from largest to smallest number of registrations or encounters; Ratio, number of CCP encounters divided by number of FEMA registrations

12%, and public education 32%, but the specific programs varied widely in their service mix (see Fig. 2). Among the declared programs, Mississippi relied on individual counseling most heavily (76% of encounters) and Alabama least heavily (38% of encounters). The undeclared programs varied from an almost exclusive focus on individual counseling in Illinois (98%) to a predominant focus on public education in Maryland and Florida (79 and 81% of encounters, respectively). Group counseling was typically the least prevalent service, but Wisconsin was a notable exception, where group counseling accounted for 48% of encounters.

Service mix (specifically, the percent of all encounters accounted for by individual counseling) was not related to the number of FEMA registrations, r_s (16) = 0.05, ns, total service volume, r_s (16) = −0.06, ns, or penetration (the ratio of encounters to FEMA registrations), r_s (16) = −0.08, ns. Nor did curve estimation procedures reveal a quadratic trend in the relationship between service mix and penetration ($F < 1$), as might occur if service balance was

the ideal mix. However, some programs did rely on numerous group or large public events to expand their reach. For example, Florida's ratio of CCP encounters to FEMA registrations was 0.5 for individual encounters (i.e., one individual encounter for every two applications), but it was 4 for total encounters [i.e., four encounters of any service type for every FEMA registration in that state (Table 2)]. These activities did not solely target Katrina evacuees, as they also included community groups, schools, and other settings with which Katrina evacuees might interact.[3]

Distributions of Visit Length and Number

Table 3 shows the distribution of selected characteristics for individual and group encounters (group counseling and public education combined). The results of statistical tests are not presented in Table 3 as all comparisons were statistically significant ($P < 0.001$) in chi square tests of association, as would be expected for a sample of this size (703,000 individual and 470,000 group encounters).

In general, CCP services were not very intense, as reflected in the typical length of encounters, and the prevalence of first versus follow-up visits in the service portfolio (Table 3). Undeclared programs provided somewhat more intensive services. These programs often served a smaller, more readily identified population of Katrina evacuees. Second or higher (follow-up) visits accounted for less than one-fourth (23%) of the individual encounters in declared programs but for over half (53%) in undeclared programs. In fact, 25% of encounters in undeclared programs were with participants who had been visited at least three times previously (compared to 8% in declared programs). The proportion of encounters accounted for by follow-up visits increased over time (see Fig. 3), from 14% (Months 3–6 combined) to 38% (Months 15–18 combined) in declared programs, F linear (1, 14) = 139.99, $P < 0.001$, and from 31 to 63% in undeclared programs, F linear (1, 14) = 78.22, $P < 0.001$.

Only 20% of individual encounters in declared programs were 30 min or longer in length, but 55% of individual encounters in undeclared programs were at least this long. Length changed only a small degree over time. Across all programs, the modal individual counseling encounter was a first visit 15–29 min long. This combination of features characterizes 65% of encounters in declared programs but only 26% of the encounters in undeclared programs.

---

[3] Grant size showed neither a linear nor quadratic relationship with the percent of all encounters accounted for by individual counseling, Fs < 1. Thus, overall, financial inputs appeared to have little to do with programs' service mix or balance.

Table 3 Encounter characteristics (months 3–18)

Characteristic	Individual crisis counseling				Group crisis counseling and public education			
	Declared		Undeclared		Declared		Undeclared	
	n	%	n	%	n	%	n	%
Visit number								
First	471,887	76.7	36,772	47.0	203,402	66.7	120,100	80.9
Second or higher	143,464	23.4	41,437	53.0	101,629	33.3	28,293	19.1
Length								
15–29 min	485,719	80.0	34,210	44.5	78,219	25.1	34,163	22.6
30–44 min	82,776	13.6	18,722	24.4	61,439	19.8	27,828	18.4
45–59 min	15,255	2.5	7,437	9.7	53,754	17.3	17,193	11.4
60 min+	23,645	3.9	16,436	21.4	117,636	37.8	71,907	47.6
Setting								
Home	340,775	55.3	42,010	51.5	109,428	34.6	13,123	8.5
Educational	15,511	2.5	1,523	1.9	84,315	26.7	44,197	28.7
Recreational, social, or government	34,778	5.6	4,850	5.9	8,208	12.1	31,693	20.6
Provider	19,108	3.1	5,336	6.5	3,870	1.2	8,852	5.7
Workplace	43,081	7.0	2,825	3.5	12,011	3.8	6,802	4.4
Disaster center	51,978	8.4	3,375	4.1	1,960	0.6	1,748	1.1
Place of worship	12,421	2.0	1,813	2.2	30,796	9.7	18,685	12.1
Medical center	6,655	1.1	608	0.7	6,121	1.9	180	0.1
Public place	60,601	9.9	2,029	2.5	16,173	4.5	3,924	2.6
Phone	3,558	0.6	9,365	11.5	0	0	0	0
Urbanicity of setting								
Rural	189,392	30.8	15,295	19.4	65,278	20.6	13,922	9.0
Small-medium city	318,201	51.8	30,176	38.2	176,361	55.8	64,797	42.0
Central city or fringe	107,025	17.4	33,535	42.0	468,909	21.8	69,702	45.2
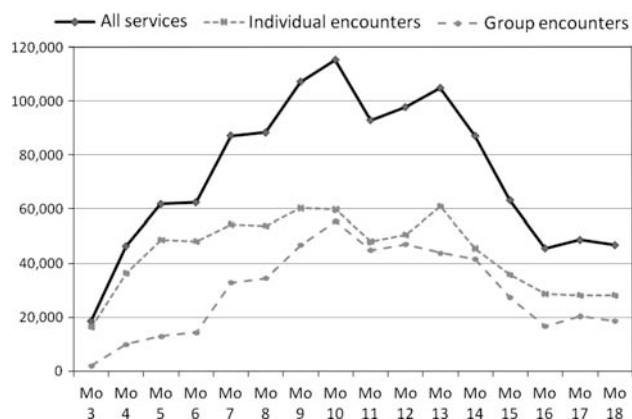
Fig. 1 Counseling encounters by service type and month post-Katrina

The results for group encounters differed from the results for individual encounters. Compared to declared programs, undeclared programs had a higher proportion of group encounters occurring in groups that were meeting only once or for the first time. Large group meetings were sometimes used as a strategy for reaching out to Katrina evacuees, who were then invited to participate in individual counseling.

Participants: Were They Representative of the Population and at Risk For Distress?

Reach is not only a matter of total numbers but of how well programs reach key constituencies, such as African Americans, older adults, or children. The distributions of characteristics for all encounters and first encounters (the best estimate for unique persons) were very similar; therefore the encounter rather than person was used as the unit of analysis for assessing population match (Statistical tests are not shown because these are essentially comparisons between populations rather than samples; standard errors approach zero for *Ns* of this magnitude).
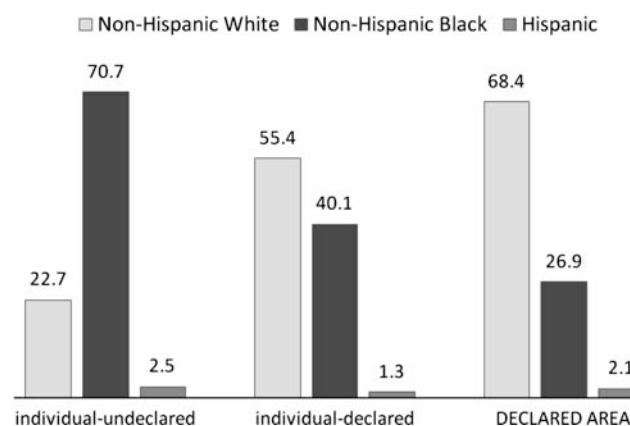
Race/Ethnicity

Almost all individual encounters were with non-Hispanic Whites (declared $n = 340,000$; undeclared $n = 18,000$) or African Americans (declared $n = 246,000$; undeclared

Fig. 2 Mix of the three service types by program, ordered from most to least emphasis on individual counseling. Declared programs are indicated by the state abbreviation followed by -D
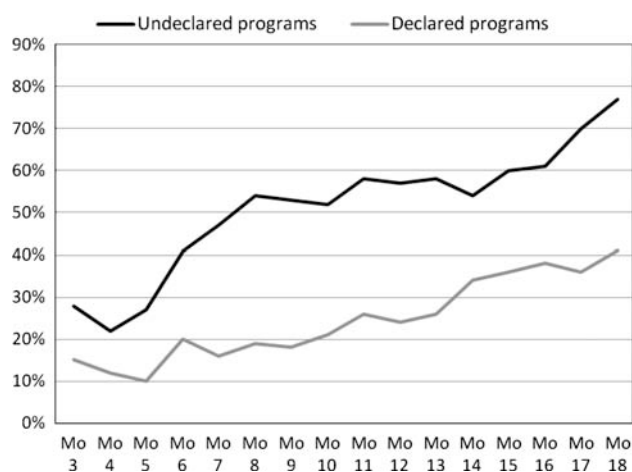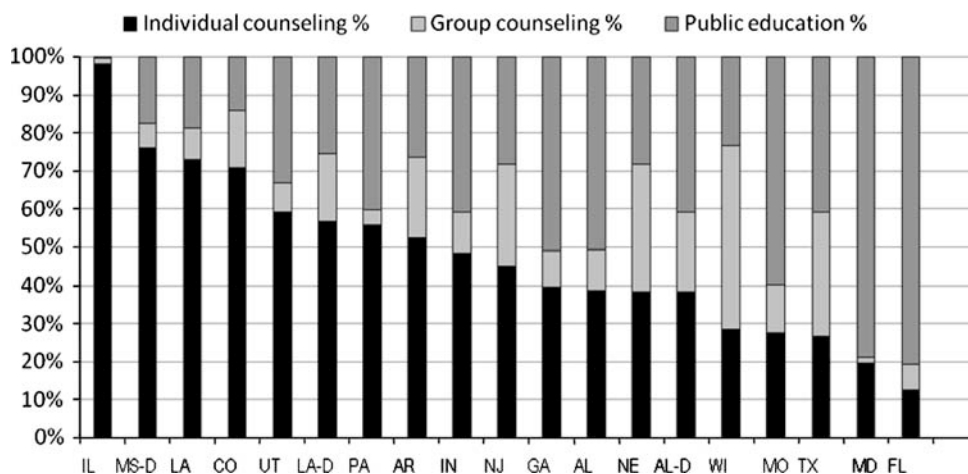
Fig. 3 Percent of individual counseling encounters accounted for by follow-up visits over time

Fig. 4 Race/ethnic distribution (percents) of individual encounters in declared and undeclared programs compared to the population of the disaster-declared area (census data)

n = 55,000). As shown in Fig. 4, Whites were under-represented, and African Americans overrepresented, in declared programs compared to their proportions in the areas in which participants lived. An even larger proportion of encounters in undeclared programs were with African Americans (71%). This likely reflects the demographics of persons displaced by the flooding of New Orleans. Race/ethnic data were not available for group encounters.

Age

Many CCPs develop specific plans for reaching older adults and children. Together declared and undeclared programs had 96,000 individual encounters and 33,000 group encounters with older adults. As shown in Fig. 5, the percent of individual encounters in declared programs involving adults age 65+ (14.5%) matched the percentage of older adults in the population (12.5%) closely. Across all

programs and service types, the percent of participants age 65+ was 11%, which is also a close match.

The story for children is more complicated. Programs documented 34,000 individual encounters and 171,000 group encounters with youth. In declared areas, the proportion of the individual encounters involving persons age 6–17 (4%) did not compare well to the proportion of the population age 6–17 (21.5%) in the same area, suggesting that youth were under-served in the CCPs. However, a different picture emerged when group encounters were considered. Youth accounted for 39 and 32% of group encounters in declared and undeclared areas, respectively (There was a parallel discordance in the proportion of locations accounted for by schools between individual and group encounters; see Table 3). When all services and programs were combined, youth accounted for 18% of encounters, a value that is much closer to the population benchmark (see Fig. 5).

Fig. 5 Age distribution of individual, group and all encounters (CCP population) compared to population of disaster-declared area (census data)
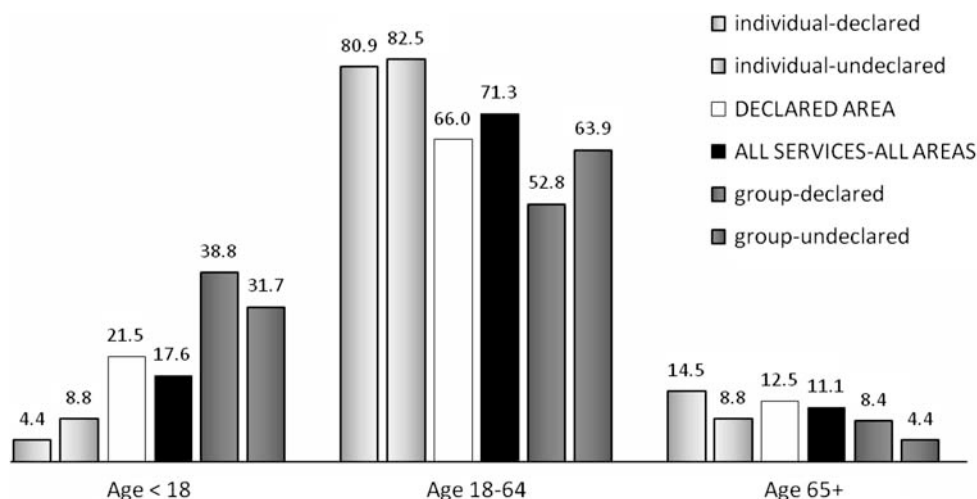
Trauma Exposure and Loss

The CCPs clearly reached many people who were highly exposed to Hurricane Katrina and therefore at risk for postdisaster distress. Table 4 shows the number of unique

Table 4 Risk factors of unique individuals (first individual crisis counseling encounters)

	Declared		Undeclared		All programs	
	n	%	n	%	n	%
Total first encounters	471,887	100.0	36,772	100.0	508,659	100.0
Trauma						
One or more	90,722	19.2	10,798	29.3	101,520	20.0
Rescue/recovery	42,375	9.0	4,160	11.3	46,535	9.1
Injury	8,583	1.8	973	2.6	9,556	1.9
Threat	40,916	8.7	4,177	11.4	45,093	8.9
Family missing/dead	11,209	2.4	2,154	5.9	13,363	2.6
Friend missing/dead	11,688	2.5	2,245	6.1	13,933	2.7
Witnessed death/injury	17,577	3.7	3,486	9.5	21,063	4.1
Loss						
Two or more	389,126	82.5	30,933	84.1	420,059	82.6
Separated from loved one	69,597	14.7	10,861	29.5	80,458	15.8
Home damage	381,141	80.8	27,482	74.7	408,623	80.3
Displaced	245,004	51.9	26,936	73.3	271,940	53.5
Disaster unemployed	89,009	18.9	16,051	43.7	105,060	20.7
Financial loss	228,658	48.5	16,256	44.2	244,914	48.1
Evacuated quickly	155,570	33.0	19,596	53.3	175,166	34.4
Community destruction	264,403	56.0	12,967	35.3	277,370	54.5

participants (as estimated by first encounters) who experienced various potentially traumatic events and losses or disruptions. These numbers are likely to be undercounts because risk factors were checked only if revealed during the conversation or otherwise known to the counselor and because they were recorded only for individual crisis counseling encounters. Nonetheless, the programs served no fewer than 102,000 persons who had at least one potentially traumatic event. Nearly all participants experienced at least one loss or disruption; 420,000 (83%; see Table 4) had at least two, and 188,000 had at least four. The prevalence of potential trauma was higher in undeclared programs (29%) than in declared programs (19%), but the prevalence of multiple losses was the same (83–84%).

Discussion

In this paper, we examined the reach of the federally-funded Crisis Counseling Program in the aftermath of Hurricane Katrina. Reach and quality capture relatively independent dimensions of program performance, and conclusions drawn from these results apply only to the former. Readers are referred to Norris et al. (2009) for an analysis of how service characteristics influenced perceived benefits of program participation.

By the criteria used in these analyses, the reach of the national CCP was appropriately wide. Between November 1, 2005 and February 28, 2007, across all programs and service types, crisis counselors documented 1.2 million encounters with persons affected directly or indirectly by the hurricane. This cumulative number is larger than the total number of registrations in these same states for FEMA individual assistance related to Hurricane Katrina. It is also larger than Project Liberty's service volume over a comparable interval.

It is not simply the magnitude of service volume that supports our conclusions about the success of CCP reach. Other findings include the following: (1) the undeclared programs resulting from the change in eligibility requirements expanded reach nationally by 25%; (2) the distribution of encounters across states closely approximated the distribution of FEMA registrations, an external benchmark for service need; (3) service capacity rose sharply over the first half of the evaluation period, reaching 100,000 encounters monthly before tapering off to 45,000–50,000 as various projects closed down; (4) in accord with program guidance, there was nationally a decent balance between individual and group services, with each contributing fairly equally to service volume; (5) CCPs continued to reach new people throughout their life-spans, although the relative frequency of follow-up increased over time; (6) the reach to African Americans was disproportionately large relative to their Census percentage, our benchmark for assessing population reach, but seems appropriate in light of how terribly many African American communities were affected by Katrina; (7) programs' access to schools and children was excellent when group services were taken into account; and (8) the programs clearly reached large numbers of individuals who suffered from potential trauma exposure and substantial loss.

There are "flip sides" to most of these coins, of which four in particular warrant further consideration. First, 80% of the reach of the undeclared programs was accomplished by 4 of the 16 programs. If eligibility had been limited to states with declarations and contiguous states (nine programs, seven states), the total reach still would have been over 1.1 million, 98% of the total reported here. However, the remaining seven programs accounted for only 6% of the total funding allocation and, given the uncertainties regarding the ultimate destinations of the evacuees, it made sense from a policy perspective to let local mental health authorities make the case for whether the need in their state justified a CCP.

Second, although the correlation between service volume (CCP encounters) and need (FEMA registrations) was very high, not all programs showed comparable penetration (ratio of service volume to need). Some programs over-performed, and some under-performed. The number of programs studied here was not sufficient to fully examine the sources of this variability, but one potential long-term benefit of an ongoing, cross-site evaluation is the opportunity to study how program, setting, and event factors influence reach. A good example of this strategy is Rosen et al.'s (2009) earlier "retrospective" evaluation of archival data (e.g., final reports) collected from 36 completed CCPs. They found that CCP grant recipients varied in the extent to which they tailored their outreach strategies to match diverse community segments. Projects with more tailored

activities reached more people than their budgets alone would predict. The development of tools for systematic measurement of program-level activities, used in combination with the present evaluation toolkit, could lead to important insights for national program policy.

Third, the nationwide balance in service mix did not hold for specific projects, which had seemingly idiosyncratic preferences for individual crisis counseling (including a few that offered long and repeated counseling sessions to participants) and large public education events. This mix was not explained by state-level need or funding levels. Service mix had no overall consequence for reach, so it may be that local programs knew best how to conduct outreach in their own states. It bears noting that service contexts varied greatly even among states that were serving essentially the same population of evacuees. For example, most evacuees in Wisconsin settled in Milwaukee, whereas evacuees in Georgia spanned 84 counties, literally from the northwest to southeast corners of the state. Nonetheless, this finding suggests that program administrators might give greater attention to helping grant recipients think through the most appropriate service mix for their context.

Fourth, the brevity of services was consistent with the CCP model but not very consistent with post-Katrina epidemiologic research, which has documented high rates of disorder and clinically significant distress in affected populations, including but not limited to evacuees (see Norris and Rosen 2009). However, the character of these programs did evolve. Considered together, Figs. 1 and 3 show decreasing emphasis on extensive outreach to the general population and increasing emphasis on following-up with selected participants over time. After especially catastrophic events, concern is often expressed about the need for providing services more intensive than typical crisis counseling (Pfefferbaum et al. 2002). New York's "enhanced services" program was a notable effort to fill this gap (Donahue et al. 2006b), but ultimately program administrators did not judge it to be a viable supplement to subsequent CCPs. After Katrina, Louisiana and Mississippi were allowed to experiment with developing "specialized crisis counseling services" and have produced some promising, though far from definitive, results (Jones et al. 2009). As an essentially preventative approach, the CCP is not designed to deliver treatment, but there is an increasing effort to infuse evidence-based practices into CCP services. Policy-makers should consider wider implementation of specialized services in the aftermath of extreme events that have severe consequences for public mental health.

Before closing, we should acknowledge a few shortcomings of the evaluation method. First, the amount of measurement error in the data is unknown. The encounter logs were service records, not interview guides, and counselors were instructed to complete them after, not

during, the encounters. Information on participant characteristics (e.g., age group, race) and exposures therefore may not always be accurate. Because of the potential paperwork burden, the encounter logs were kept very short (one page) and did not measure everything one might wish to know. There are missing data, especially in the early months, because programs were not required to adopt the new evaluation forms until their RSP awards were approved. Fortunately, most programs, including most recipients of the largest grant awards, began using the new encounter logs as soon as they were introduced. The cross-site evaluation had originally been planned for implementation in 2006, but was rushed forward when the advent of Hurricane Katrina demanded a cross-site approach. Therefore, it was not possible to train and get "buy in" from program leaders in advance of implementation, as would be ideal. Progress in evaluation training and technical assistance might make the evaluation more useful to program managers, as might web-based data entry systems that make the data more quickly and easily accessible.

Despite these shortcomings, the evaluation was able to show that the Crisis Counseling Program reached an enormous number of Hurricane Katrina survivors nationwide. Although the vast reach does not assure effectiveness, these state-administered programs clearly did what they were tasked to do. Moreover, the Hurricane Katrina response evidenced a growing willingness of the national program to experiment, innovate, and evaluate.

References

Donahue, S., Covell, N., Foster, M. J., Felton, C., & Essock, S. (2006a). Demographic characteristics of individuals who received Project Liberty crisis counseling services. *Psychiatric Services, 57*, 1261–1267.

Donahue, S., Jackson, C., Shear, M. K., Felton, C., & Essock, S. (2006b). Outcomes of enhanced counseling services provided to adults through Project Liberty. *Psychiatric Services, 57*, 1298–1303.

Donahue, S., Lanzara, C., Felton, C., Essock, S., & Carpinello, S. (2006c). Project Liberty: New York's crisis counseling program

created in the aftermath of September 11, 2001. *Psychiatric Services, 57*, 1253–1258.

Elrod, C., Hamblen, J., & Norris, F. (2006). Challenges in implementing disaster mental health programs: State program directors' perspectives. *The Annals of the American Academy of Political and Social Science, 604*, 152–170.

Felton, C., Donahue, S., Lanzara, C., Pease, E., & Marshall, R. (2006). Project Liberty: Responding to mental health needs after the World Trade Center terrorist attacks. In Y. Neria, R. Gross, R. Marshall, & E. Susser (Eds.), *9/11: Mental health in the wake of terrorist attacks* (pp. 264–281). New York: Cambridge University Press.

Flynn, B. (1994). Mental health services in large scale disasters: An overview of the Crisis Counseling Program. *NCP Clinical Quarterly, 4*, 1–4.

Jones, K., Allen, M., Norris, F., & Miller, C. (2009). Piloting a new model of crisis counseling: Specialized Crisis Counseling Services in Mississippi after Hurricane Katrina. *Administration and Policy in Mental Health and Mental Health Services Research.* doi:10.1007/s10488-009-0214-2.

Naturale, A. (2006). Outreach strategies: An experiential description of the outreach methodologies used in the September 11, 2001 disaster response in New York. In C. Ritchie, P. Watson, & M. Friedman (Eds.), *Mental health intervention following disasters or mass violence* (pp. 365–383). New York: Guilford Press.

Norris, F., & Alegria, M. (2005). Mental health care for ethnic minority individuals and communities in the aftermath of disasters and mass violence. *CNS Spectrum, 10*, 132–140.

Norris, F., Friedman, M., Watson, P., Byrne, C., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak, Part I: An empirical review of the empirical literature, 1981–2001. *Psychiatry, 65*, 207–239.

Norris, F., Hamblen, J., & Rosen, C. (2009). Service characteristics and counseling outcomes: Lessons from a cross-site evaluation of crisis counseling after Hurricanes Katrina, Rita, and Wilma. *Administration and Policy in Mental Health and Mental Health Services Research.* doi:10.1007/s10488-009-0215-1.

Norris, F., Hamblen, J., Watson, P., Ruzek, J., Gibson, L., Pfefferbaum, B., et al. (2006). Understanding and creating systems of postdisaster care: A case study of New York's mental health system's response to the World Trade Center Disaster. In C. Ritchie, P. Watson, & M. Friedman (Eds.), *Mental health intervention following disasters or mass violence* (pp. 343–364). New York: Guilford Press.

Norris, F., & Rosen, C. (2009). Innovations in disaster mental health services and evaluation: National, state, and local responses to Hurricane Katrina. *Administration and Policy in Mental Health and Mental Health Services Research.* doi:10.1007/s10488-009-0218-y.

Pfefferbaum, B., North, C., Flynn, B., Norris, F., & DeMartino, R. (2002). Disaster mental health services following the 1995 Oklahoma city bombing: Modifying approaches to address terrorism. *CNS Spectrums, 7*, 575–579.

Rosen, C., Young, H., Greene, C., & Norris, F. (2009). Tailoring of post-disaster mental health services to diverse community groups: Analysis of 36 crisis counseling grants. Unpublished manuscript, under review.

Young, B., Ruzek, J., Wong, M., Salzer, M., & Naturale, A. (2006). Disaster mental health training: Guidelines, considerations, and recommendations. In C. Ritchie, P. Watson, & M. Friedman (Eds.), *Mental health intervention following disasters or mass violence* (pp. 54–79). New York: Guilford Press.